REMARKS

Claims 1-8 and 11-29 are pending. By this Amendment, claims 1 and 5 are cancelled, claims 2, 4, 6, 8, 11, 15, 20-22, 28, and 29 are amended and new claim 30 is added. Support for the amendments can be found throughout the specification and figures as originally filed.

Claim Rejections – 35 U.S.C. § 103

Claims 1, 11-14, and 29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Application Publication No. 2003/0076973 to Yamada in view of U.S. Application Publication No. 2003/0086572 to Sotome et al., and further in view of U.S. Patent no. 5,818,941 to Embree; claims 2 and 7-8 stand rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 1 in view of U.S. Patent No. 6,961,433 to Ishii; claim 3 stands rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 2, and further in view of U.S. Patent No. 7,181,019 to Breebaart et al.; claims 4-6 stand rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 2, and further in view of U.S. Patent No. 5,960,390 to Ueno et al; claims 15-17, 19, and 21-28 stand rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 1, in view of Ueno et al.; claim 18 stands rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 16, and further in view of U.S. Patent No. 6,535,920 to Parry et al., and claim 20 stands rejected under § 103(a) as being unpatentable over the above cited references as applied to claim 1, in view of Ishii, and further in view of Ueno et al. Independent claim 1 has been cancelled, and new independent claim 30 has been added.

Insofar as the rejections apply to newly added claim 30, Applicants respectfully traverse the rejections.

The present disclosure is directed to a method for enhancing a transformation applied to sound signals diffused in an original reflecting environment. In order to achieve this transformation, left and right sound signals are diffused in a reflective environment by two speakers and detected by an acoustic detector. Filters corresponding to the transformation of the sound signals in the reflective environment are then computed by comparing the electric sound signals detected and the electric sound signals diffused initially. According to the disclosure and as recited in claim 30, these filters are then modified, for example, by alteration of the amplitude from certain samples from a temporal filter in order to obtain modified filters. These modified filters are applied to electric sound signals in order to obtain a processed electric sound signal on the right and a processed electric signal on the left, so that when these processed sound signals are diffused, it appears that they are diffused in a virtual environment which is based on the original environment, but is different from the original environment because the filters have been modified in order to give a certain impression of depth to the listener.

None of the cited references, taken alone or in combination, disclose or suggest a "method for processing an electric sound signal wherein a right sound signal and a left sound signal are diffused in a reflective environment by two speakers and are detected by an acoustic detector comprising a right microphone and a left microphone" including computing of temporal filters, modifying each of the temporal filters, applying the modified temporal filters to a right original sound signal and a left original sound signal to obtain processed electric sound signals, adding a first and fourth processed electric sound signal and the right original sound signal to

obtain a right processed electric sound signal, and adding a second and third processed electric sound signal and the left original sound signal to obtain a left processed electric sound signal as recited in claim 30, in combination with the other limitations of the claims.

Rather, Yamada is directed to "input digital sound signals...subjected to filtering for convolution of respective impulse responses, and resulting signals...supplied to time delay setting circuits" such that "when listening to sound with headphones and localizing a sound image at an arbitrary fixed position outside the listener's head, shock noises generated upon change in the facing direction of the listener are reduced." Abstract. Yamada does not disclose or suggest computing of temporal filters, modifying each of the temporal filters, adding the first and fourth processed electric sound signal and the right original sound signal to obtain a right processed electric sound signal, and adding the second and third processed electric sound signal and the left original sound signal to obtain a left processed electric sound signal, as recited in claim 30 in combination with the other limitations of the claim.

Sotome et al. does not make up for the deficiencies of Yamada. Sotome et al. discloses computation of filters corresponding to an original environment in order to simulate the transformation applied to sound signals diffused in the environment. However, Sotome et al. does not disclose or suggest modification of the computed filters, as recited in new claim 30, so that when the modified filters of the present disclosure are applied to audio signals, it gives the impression that these audio signals are diffused in a virtual audio environment which will have a sonority close to the sonority of the original environment in which the filters have been computed, but will be different from the exact sonority of the original environment because the filters have been modified in order to give the listener an impression of depth. On the contrary,

Sotome et al. teaches at paragraph [0046] to obtain "audio signals of waveforms *strictly identical* with those of reverberation sounds," the reverberation sound being the sound detected by the microphone in the original environment. Sotome et al. teaches away from the present disclosure in that to obtain audio signals strictly identical with those of reverberation sounds, the filters associated to the original environment are not modified.

None of the remaining references, alone or in combination, make up for the deficiencies of Yamada and Sotome et al. described above. Embree is cited for teaching a diffusion of a combination of an original electric sound signal and a processed electric sound signal. Ishii is cited for computing filter factors using frequency spectrums of received white noise electric signals. Parry et al. is cited for disclosing an electric sound signal stored in a circular buffer memory. Ueno et al. is cited for modification of an audio signal. Even if a person skilled in the art tried to modify the filters of Sotome et al., although as discussed above Sotome et al. teaches away from such, one would not be able to achieve this modification using the teaching of Ueno et al. because Ueno et al. teaches modification of an audio signal, but not filters as in the presently claimed invention. Rather, in Ueno et al., normalization circuits 105a-105d and transform circuits 104a-104d are applied to frequency bands of the audio signal 100 but not to the filters, as shown in Figure 5 of Ueno et al., and at col. 9, lines 5-10, col. 10, lines 13-24, and col. 5, line 66 – col. 6, line 14.

Applicants respectfully assert that the Examiner has not pointed to any evidence that the '019 Patent to Breebaart et al. is prior art under any section of 35 U.S.C. § 102. The earliest priority date of the present disclosure is March 20, 2003 (French Priority No. 03/50057), and the U.S. filing date is the international application filing date of March 22, 2004 per MPEP

§ 1893.03(b). The '019 Patent to Breebaart et al. is a § 371 national stage application of International Application No. PCT/IB2004/050085 filed February 9, 2004. The International Application published in English as WO 2004/072956 on August 26, 2004 and the '019 Patent published as US 2006/0147048 on July 6, 2006. Neither the '019 Patent nor the PCT publication is prior art under § 102(a) because the publication dates of the '019 Patent (July 6, 2006) and the PCT publication (August 26, 2004) are *after* both the earliest priority date (March 20, 2003) and the U.S. filing date (March 22, 2004) of the present disclosure. Neither the '019 Patent nor the PCT publication is prior art under § 102(b) because the publication dates of the '019 Patent (July 6, 2006) and the PCT publication (August 26, 2004) are *after* the U.S. filing date (March 22, 2004) of the present disclosure. Neither the '019 Patent nor its publication (US 2006/0147048) are prior art under either § 102(e)(1) or (2) because both the filing date (February 9, 2004) and the publication date (August 26, 2004) of the Breebaart International Application are *after* the earliest priority date (March 20, 2003) of the present disclosure. The '019 Patent claims priority back to a European application filed February 11, 2003; however there is no evidence that this application published either before the earliest priority date or the U.S. filing date of the present disclosure, and therefore cannot be art under § 102(a) or (b), and its filing date is irrelevant in determining the § 102(e) date of the Breebaart reference.

Therefore, independent claim 30 is believed to be in condition for allowance. Claims 2-4, 6-8, and 11-29 depend from claim 30 and are allowable for at least the same reasons claim 30 is allowable.

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,

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